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Prevention

PATIENT-LEVEL DISCORDANCE IN POPULATION PERCENTILES OF THE TC/HDL-C RATIO, NON-HDL-C, AND LDL-C: INSIGHTS FROM THE VERY LARGE DATABASE OF LIPIDS STUDY (VLDL-2)

Poster Contributions
Poster Sessions, Expo North
Saturday, March 09, 2013, 3:45 p.m.-4:30 p.m.

Session Title: Prevention: Lipoproteins, Particles and Ratios
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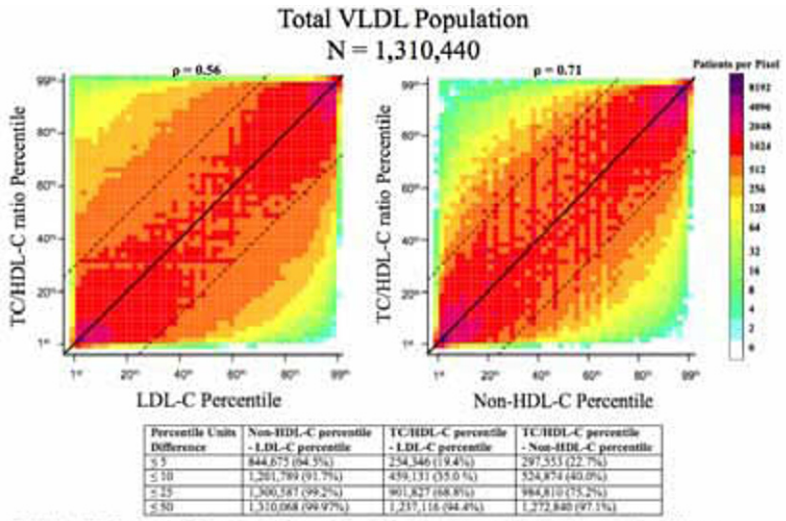
Background: The TC/HDL-C ratio, Non-HDL-C, and LDL-C are each routinely available in clinical practice. Considerable patient-level discordance between these markers would suggest the possibility of complementary information.

Methods: We assigned population percentiles to TC/HDL-C, Non-HDL-C and LDL-C in 1,340,614 U.S. adults from the Very Large Database of Lipids (VLDL). Lipid testing was performed by direct ultracentrifugation (Atherotech, Birmingham, AL). LDL-C was estimated by the Friedewald formula, excluding patients with triglycerides ≥400 mg/dL (N=30,174; 2.3% of sample). We examined discordance by calculating the absolute difference in percentile units between these lipid markers.

Results: Spearman correlation (ρ) between TC/HDL-C and LDL-C percentiles was 0.56 while ρ between TC/HDL-C and Non-HDL-C percentiles was higher (0.71). The proportion of patients with > 10 percentile units difference between TC/HDL-C and LDL-C percentiles was 65% and between TC/HDL-C and Non-HDL-C percentiles was 60%. Similarly, the proportion of patients with > 25 percentile units difference was 31.2% and 24.8%, respectively.

Conclusion: ~1 in 4 individuals have a discordance of > 25 percentile units between TC/HDL-C and Non-HDL-C and ~1 in 3 individuals have a discordance of > 25 percentile units between TC/HDL-C and LDL-C. In instances of discordance, implications for risk assessment must be explored and there may be value in considering multiple lipid parameters in treatment decisions.



Percentile Units Difference	Non-HDL-C percentile - LDL-C percentile	TC/HDL-C percentile - LDL-C percentile	TC/HDL-C percentile - Non-HDL-C percentile
≤ 5	844,675 (64.5%)	254,346 (19.4%)	297,553 (22.7%)
≤ 10	1,201,789 (91.7%)	459,131 (35.0 %)	524,874 (40.0%)
≤ 25	1,300,587 (99.2%)	901,827 (68.8%)	984,810 (75.2%)
≤ 50	1,310,068 (99.97%)	1,237,116 (94.4%)	1,272,840 (97.1%)

Table: Non-HDL-C minus LDL-C percentile difference (column 2) is given in order to compare the concordance of Non-HDL-C and LDL-C percentiles to the concordance of TC-HDL-C percentiles. Figure: The density of data is expressed by 13 different shades of color, which represent increasing densities of patients per pixel, from light blue to deep purple. The solid diagonal line represents perfectly concordant percentile values. The dashed lines represent the 25th percentile difference threshold.